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10/680,683	10/07/2003	Andrea G. Bozzano	107320	2319

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EXAMINER

DANG, THUAN D

ART UNIT PAPER NUMBER

1764

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/680,683

Applicant(s)

BOZZANO ET AL.

Examiner

Thuan D. Dang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/7/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what reaction occur and which reactants participate in step (b) of claim 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anantaneni (6,133,492).

Anantaneni discloses a process of alkylation of benzene with an olefin having from 10 to 14 carbons in the presence of two different catalysts. The first one a mordenite and the second one contains silica-alumina to produce a product containing 2-phenyl isomer (see the abstract).

While applicants claim the catalysts are arranged in a series sequence of mordenite and silica-alumina, Anantaneni discloses that these two catalysts can be in a mixed bed or in a series. Further, Anantaneni does not disclose what the sequence of these two catalysts is.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Anantaneni process by placing the mordenite upstream to the silica-alumina catalyst to arrive at the applicants' claimed process since it is expected that using any sequence would also reach 70% of 2-phenyl isomers as disclosed on column 7, lines 4-6. Note applicants claim about 25 to about 80 wt% of 2-phenyl isomers (see claim 1).

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Anantaneni does not disclose (1) a low content of the fluoride in the mordenite catalyst as called in step (a) of claim 1 and (2) excluding the fluoride treatment step of the mordenite catalyst (see the abstract; col. 3, line 24 through col. 4, line 26).

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Anantaneni process by eliminating the fluoride from the Anantaneni catalyst to arrive at the applicants' claimed process if a catalyst having a lower selectivity of 2-phenyl isomers is desired (col. 2, lines 42-44). Further, it has been held that deletion of one more elements taught in the applied references, thereby deleting their functions, is an obvious expedient. Particularly if its function (feature) is not desired. *In re Keegan*, 51 CCPA 1344; 331 F2d 315; 141 USPQ 512 (CCPA 1964). *In re Larson*, 340 F2d 965; 144 USPQ 347 (CCPA 1965). *In re Kuhle*, 526 F2d 523; 188 USPQ 7 (CCPA 1975).

As discussed above, when fluoride is obviously eliminated from the catalyst, the fluoride treatment step is not necessary since Anantaneni uses the treatment of fluoride to add the fluoride to the catalyst (see the abstract).

Anantaneni does not disclose the relative amounts of the mordenite catalyst and the silica-alumina catalyst. However, the concentration of the two catalysts must be selected to optimize the process since it has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claimed are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller* 105 USPQ 233, 255 (CCPA 1955). *In re Waite* 77 USPQ 586 (CCPA 1948). *In re Scherl* 70 USPQ 204 (CCPA 1946). *In re Irmischer* 66 USPQ 314 (CCPA 1945). *In re Norman* 66 USPQ 308 (CCPA 1945).

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*In re Swenson* 56 USPQ 372 (CCPA 1942). *In re Sola* 25 USPQ 433 (CCPA 1935). *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

The ratio of Al and Si in the Mordenite can be found on column 3, lines 28-29.

The temperature of the reaction can be found on column 5, lines 60-65. The reaction must be in at least partial liquid phase since it is carried out in a distillation reactor (col. 4, line 63).

On column 7, lines 19-20, Anantaneni discloses that the silica-alumina catalyst can contain fluoride.

Although, Anantaneni does not disclose how much the amount of fluoride should be in the silica-alumina catalyst, and the ratio of silica per alumina in the silica-alumina catalyst it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Anantaneni process by using an appropriate amount of fluoride to arrive at the applicants' claimed process since it has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claimed are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller* 105 USPQ 233, 255 (CCPA 1955). *In re Waite* 77 USPQ 586 (CCPA 1948). *In re Scherl* 70 USPQ 204 (CCPA 1946). *In re Irmscher* 66 USPQ 314 (CCPA 1945). *In re Norman* 66 USPQ 308 (CCPA 1945). *In re Swenson* 56 USPQ 372 (CCPA 1942). *In re Sola* 25 USPQ 433 (CCPA 1935). *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

The content of olefins during the contacting of second catalyst depends on the selection of conversion of olefin in the first catalyst. This conversion must be obviously selected to optimize the process.

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Anantaneni is silent as to the LOI factor of the second catalyst. However, once LOI has been recognized as a property of the silica-alumina, one having ordinary skill in the art at the time the invention was made would have obviously selected an appropriate LOI for the silica-alumina to optimize the activity of the catalyst.

It is well-known that the olefin can be produced by dehydrogenation of paraffins (see page 6, lines 11-25 of the specification of this application). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Anantaneni process by using olefins produced from paraffins in the industry to arrive at the applicants' claimed process since it is expected that using any olefinic feed would yield similar results.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anantaneni (6,133,492) in view of Bakas et al (4,870,222).

Anantaneni discloses process as discussed above.

Anantaneni does not disclose recycling a portion of the effluent of reaction. However, Bakas discloses using recycle reactors for alkylation of aromatics (see figure 3, the abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Anantaneni process by recycling aliquot portions of the alkylation effluent so that the process can be operated at a per-pass conversion rate that maximizes monoalkylaromatic production (col. 9, lines 62-67).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,521,804. Although the conflicting claims are not identical, they are not patentably distinct from each other because the conflicting process includes steps substantially the same as the claimed process except that while applicants claims the mordenite catalyst containing an amount of fluoride of less than 2 wt% and the olefinic feed containing of less than 2% wt of coboiling aromatics, the conflicting claim process does not disclose the presence of the same in the Mor catalyst as well as the presence of coboiling aromatics.



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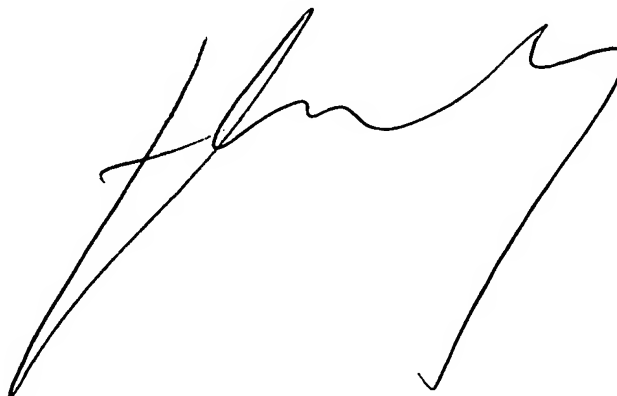
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang  
Primary Examiner  
Art Unit 1764

10680683.20060512

A handwritten signature in black ink, appearing to be 'Thuan D. Dang', written in a cursive style with a large loop at the end.